UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,951	02/06/2002	Srinivasa Sesha Soma Sekhar Muppidi	21216-06215	3621

33932 7590 03/24/2006

CIENA CORPORATION
1201 WINTERSON ROAD
LINTHICUM, MD 21090

EXAMINER	
LEE, DAVID J	

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/071,951	MUPPIDI ET AL.	
	Examiner	Art Unit	
	David Lee	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 June 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to: See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 4-13, 17-25, 29, 30, 34, 36-43, and 47-50 are rejected under 35 U.S.C. 102(e) as being anticipated by DeVette (US Patent No. 6,718,141 B1).

Regarding claim 1, DeVette teaches a method to determine configuration information associated with an optical network having a plurality of optical nodes coupled by optical fiber spans (col. 4, lines 31-34), the method comprising: discovering at least one neighboring optical nodes (col. 2, lines 35-39), each neighboring optical node being coupled by a single optical span having at least one optical fiber (col. 4, lines 33-34); each node publishing at least one neighboring node to the network (col. 4, lines 40-60); and each node of said plurality of optical nodes determining a network configuration having a topological map of network links corresponding to the discovered neighboring optical nodes (col. 2, lines 44-49; see also col. 22, lines 42-54 and Table 1 in col. 14 – each node issues a connectivity report reflecting the topology of the node and its upstream discovered neighboring nodes; i.e. - the issuing of the connectivity report reflecting network topology is considered "determining a network configuration").

Regarding claim 2, DeVette teaches generating an alarm signal indicative of a network configuration error responsive to detecting an error between the network configuration and a planned configuration (col. 28, lines 25-27; see also col. 22, lines 55-65 and col. 20, lines 54-67).

Regarding claim 4, DeVette teaches correlating information from each node to isolate the location of a configuration error (col. 3, lines 33-41).

Regarding claim 5, DeVette teaches that discovering at least one neighboring optical node comprises: each node receiving node identification messages from adjacent nodes that includes a unique source node identifier (col. 19, lines 30-40).

Regarding claim 6, DeVette teaches that each node publishes at least one node configuration attribute to the network (col. 2, lines 55-57: each node can have a processor which generates configuration data and publishes it).

Regarding claim 7, DeVette teaches each node forming an information model of the optical network (col. 2, lines 55-56: configuration data is considered the information model) and each node determining a network configuration having an arrangement of neighboring nodes consistent with the information model of the node (col. 2, lines 55-65; see also col. 22, lines 43-54 – the issuing of the connectivity report reflecting network topology is considered "determining a network configuration").

Regarding claim 8, DeVette teaches that each node generates an alarm signal indicative of a network configuration error responsive to the node detecting an error in the network configuration (col. 28, lines 25-27).

Regarding claim 9, DeVette teaches correlating the alarm signals of the nodes to isolate a location of a configuration error (col. 3, lines 33-41).

Regarding claim 10, DeVette teaches forming an information model of the optical network (col. 2, lines 55-56: configuration data is considered the information model) and determining a network configuration having an arrangement of neighboring nodes consistent with the information model of the node (col. 2, lines 55-65).

Regarding claim 11, in view of the 112 problem above, DeVette teaches the issuing an error correction command responsive to determining that the network configuration differs from a planned configuration (col. 28, lines 25-27).

Regarding claim 12, DeVette teaches that the information model includes the identity of each span interface coupling neighboring nodes (col. 19, lines 30-40).

Regarding claim 13, DeVette teaches that the error is a fiber misconnection error and an alarm signal is issued responsive to determining incorrectly corrected optical fibers (col. 2, lines 1-5 and lines 35-38).

Regarding claim 17, DeVette teaches a method to determine configuration information associated with an optical network having a plurality of optical nodes coupled by optical fiber spans (col. 4, lines 31-34), the method comprising: discovering at least one pair of neighboring optical nodes (col. 2, lines 35-39), each pair of neighboring optical node being coupled by a single optical span having at least one optical fiber (col. 4, lines 33-34); determining a network configuration having a topological map of network links corresponding to the discovered neighboring optical nodes (col. 2, lines 44-49); and generating an alarm signal indicative of a network configuration error responsive to detecting an error between the network configuration and a planned configuration (col. 28, lines 25-27; col. 20, lines 54-67; col. 22, lines 55-65).

Regarding claim 18, DeVette teaches each node receiving node identification message from adjacent nodes that includes a unique source node identifier (col. 19, lines 30-40); and each node publishing its neighboring node to the network (col. 4, lines 40-60).

Regarding claim 19, DeVette teaches that each node publishes at least one node configuration attribute to the network (col. 2, lines 55-57: each node can have a processor which generates configuration data and publishes it).

Regarding claim 20, DeVette teaches each node forming an information model of the optical network (col. 2, lines 55-56: configuration data is considered the information model) and each node determining a network configuration having an arrangement of neighboring nodes consistent with the information model of the node (col. 2, lines 55-65; see also Table 1 in col. 14; col. 22, lines 42-45).

Regarding claim 21, DeVette teaches that each node generates an alarm signal indicative of a network configuration error responsive to the node detecting an error in the network configuration (col. 28, lines 25-27; see also col. 25, lines 11-27).

Regarding claim 22, DeVette teaches correlating the alarm signals of the nodes to isolate a location of a configuration error (col. 3, lines 33-41).

Regarding claim 23, DeVette teaches forming an information model of the optical network (col. 2, lines 55-56: configuration data is considered the information model) and determining a network configuration having an arrangement of neighboring nodes consistent with the information model of the node (col. 2, lines 55-65).

Regarding claim 24, DeVette teaches that the information model includes the identity of each span interface (the span interface is fiber) coupling neighboring nodes (col. 19, lines 30-40).

Regarding claim 25, DeVette teaches that the error is a fiber misconnection error and an alarm signal is issued responsive to determining incorrectly corrected optical fibers (col. 2, lines 1-5 and lines 35-38).

Regarding claim 29, DeVette teaches a method to determine configuration information associated with an optical network having a plurality of optical nodes coupled by optical fiber spans (col. 4, lines 31-34), the method comprising: exchanging identification messages between neighboring nodes (col. 4, lines 40-60), each identification message including a source node identifier and node configuration data (col. 19, lines 30-40); for each node, publishing the identity of the node, the identity of its neighbors (see Table 14 in col. 14, and note also that the configuration data circulates downstream to each node; see also col. 15, lines 33-55; for detailed description of this circulation process, see col. 16, line 44 to col. 17, line 31), and the node configuration data associated with the node (col. 4, lines 40-48; fig. 6B); and determining a network configuration consistent with the published node information (col. 4, lines 41-43).

Regarding claim 30, DeVette teaches generating an alarm signal indicative of a configuration error responsive to detecting an error in the network configuration (col. 28, lines 25-27).

Regarding claim 34, DeVette teaches that the nodes publish information sufficient to determine the span interfaces by which they are coupled to neighboring nodes (optical fiber) and the alarm signal is an incorrect fiber connection alarm signal generated responsive to determining that at least one node has incorrectly connected fibers (col. 2, lines 1-5 and lines 35-38).

Regarding claim 36, DeVette teaches an optical node for a optical network (e.g. – 101 of fig. 1), comprising: an optical transport complex for adding, dropping, and passing through optical channels (fig. 1; col. 6, lines 35-39); an administrative complex for administering the optical transport complex (123 of fig. 1: central network monitor; Abstract, lines 21-25) and having a memory adapted to receive provisioning data for the optical transport complex (fig. 7a; col. 6, lines 1-4); an inter-node communication module coupled to the administrative complex (124 of fig. 1: the fiber is an "inter-node communication module" in that it is for communicating with neighbor nodes on an inter-node data channel) for communicating with neighboring nodes on an inter-node data channel and publishing data to the optical network (col. 4, lines 43-50); and a configuration discovery module exchanging node identification and configuration data with other nodes to determine the network configuration (col. 4, lines 35-45; see also fig. 2A – note OSC processing subsystem 234).

Regarding claim 37, DeVette teaches a neighbor discovery and publication module to exchange node identification messages with neighboring nodes and publish neighbor information to the optical network (col. 4, lines 35-50: configuration signal processor; 234 of fig. 2A); a configuration analysis module forming an information model of the optical network consistent with the node relationships of the neighbor information (col. 4, lines 35-45: mapping processor; considered to be part of processing system); and an alarm generator comparing the information model with the provisioning data and generating a configuration alarm responsive to detecting an error in the network configuration (col. 28, lines 25-27; see also col. 2, lines 54-67 and col. 22, lines 55-65).

Regarding claim 38, DeVette teaches node configuration data comprising a node identifier and at least one network attribute associated with the node (col. 2, lines 55-57; col. 19, lines 30-40).

Regarding claim 39, DeVette teaches that the configuration discovery module issues an alarm signal responsive to detecting a configuration error (col. 28, lines 25-27).

Regarding claim 40, DeVette teaches a plurality of optical nodes, each node having at least one neighbor node which is coupled to it by an optical span (101-122 of fig. 1); each node having an inter-node communication module to communicate with the other nodes of the network (124 of fig. 1: the fiber is an "inter-node communication module" in that it is for communicating with neighbor nodes on an inter-node data channel); each node configured to identify itself to its neighbors and to publish the identity of its neighbors to the optical network (col. 19, lines 30-40; col. 4, lines 45-55; see Table 1 in col. 14 and col. 16-17: each node publishes its own status and the status of the nodes from the received signal); and at least one of the nodes configured to form a model of the network configuration from published neighbor information (col. 4, lines 41-43; CNM 123 of fig. 1 is part of node 101 – see col. 6, lines 47-49).

Regarding claim 41, DeVette teaches that at least one of the nodes is configured to issue an alarm signal responsive to the network configuration being different from a provisioned network configuration (col. 28, lines 25-27).

Regarding claim 42, DeVette teaches that each node publishes a node identifier and at least one node attribute to its neighbors and the model of the network includes the at least one node attribute (col. 19, lines 30-40; col. 4, lines 41-55).

Regarding claim 43, DeVette teaches that at least one of the nodes is configured to issue an alarm responsive to the network configuration being different from a provisioned network configuration (col. 28, lines 25-27).

Regarding claim 47, DeVette teaches an optical transport complex for adding, dropping, and passing through optical channels (fig. 1; col. 6, lines 35-39); and an administrative complex for administering the optical transport complex (123 of fig. 1: central network monitor; Abstract, lines 21-25) and having a memory adapted to receive provisioning data for the optical transport complex (fig. 7a; col. 6, lines 1-4)

Regarding claim 48, DeVette teaches an element management system (Abstract, lines 21-25: central network monitor) coupled to receive the model of the network configuration and issuing an error correction command responsive to determining a network configuration error (col. 12, lines 43-48).

Regarding claim 49, DeVette teaches that the error correction command comprises provisioning at least one of the nodes (col. 12, lines 43-48).

Regarding claim 50, DeVette teaches that the error correction command is an instruction to alter a node component (col. 12, lines 43-48).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 14-16, 26-28, 31-33, 35, and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeVette.

Regarding claims 14-16, 26-28, 31-33, and 44-46, DeVette teaches the limitations of claims 23, 30, and 43, but does not specifically disclose that the error is because of an incompatible node type, setting, or parameter. However, Examiner takes official notice that errors from incompatible node types, settings and parameters exist and alerting a configuration system or a technician when such errors occur is well known in the art. It would have been obvious to one of ordinary skill in the art at the time of invention to issue an incompatible node type, setting, or parameter alarm in order to correct the problem and maintain a functional network configuration. Also, in regards to claims 31-33, DeVette does not expressly disclose a node type, setting, or parameter included in the configuration data, but it is disclosed that the data includes node identification data (col. 19, lines 30-40). It would have been obvious to one of ordinary skill in the art at the time of invention to include the node type, setting, or parameter in the data in order to have more information regarding each of the nodes.

Regarding claim 35, DeVette teaches the limitations of claim 29, but does not expressly disclose issuing an error command to alter the optical network to form a compatible network configuration. However, a skilled artisan would have clearly recognized that when a fault was detected in the system of DeVette, some kind of mechanism, whether manual or automated, would be provided to correct the detected error. Examiner takes official notice that this procedure is well known in the art and usually follows after an error has been detected. It would have been obvious to a skilled artisan at the time of invention to correct the detected error in order to maintain an operable and efficient network.

Claims 51-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeVette in view of Elliott (US Patent No. 6,456,599).

Regarding claims 51 and 54, DeVette teaches an optical network, comprising: a plurality of optical nodes coupled by optical spans (101-122 of fig. 1), each node including an inter-node communications capability to communicate messages with neighboring nodes (optical fiber); neighbor discovery means for discovering the identity of neighboring nodes to identify at least two neighboring nodes (col. 2, lines 35-38 and lines 60-65; see Table 1 in col. 14); configuration analysis means for determining a configuration of the optical network having a topology map corresponding to a relationship between the neighboring nodes (col. 2, lines 46-49; 123 of fig. 1); and alarm means for generating an alarm signal indicative of a configuration error (col. 28, lines 25-27). DeVette does not expressly disclose that the neighbor discovery means transmits signals in opposite directions to discover the neighboring nodes. However, DeVette does disclose that bidirectional communication is usually necessary in most telecommunication applications, especially in long-haul networks (col. 6, lines 58-65) and that multiple configuration signals can propagate simultaneously (col. 14, lines 25-28). Elliott, from a similar field of endeavor, teaches a communication network implementing a neighbor discovery means (see Abstract), wherein a node transmits signals in opposite directions to discover neighboring nodes (col. 8, lines 35-60). If the network was operating under bidirectional communications (e.g. – a long-haul network, as suggested by DeVette), a skilled artisan would have been motivated to implement a bidirectional neighbor discovery means in order to gather network information more efficiently. It would have been obvious to a skilled artisan at the time of invention to implement the bidirectional

neighbor discovery means of Elliot in the node of DeVette in order to map network topology rapidly and effectively.

Regarding claim 52, DeVette teaches that the neighbor discovery means is configured to publish neighbor information to the network (col. 4, lines 42-50).

Regarding claim 53, DeVette teaches that each node further publishes at least one additional node attribute to at least one other node (col. 4, lines 40-50).

Response to Arguments

3. Applicant's arguments with respect to the amended claims 51-54 have been considered but are moot in view of the new grounds of rejection.

Applicant's arguments filed 1/5/2006 regarding claims 1-2 and 4-50 have been fully considered but they are not persuasive.

Regarding claim 1, applicant argues that DeVette does not teach the step of each node of a plurality of optical nodes determining a network configuration having a topological map of network links corresponding to the discovered neighboring nodes. Examiner disagrees. Each node of DeVette comprises an OSC processing system (234 of fig. 2A) which functions to circulate a configuration signal via a node-to-node message. This message, which acts like a token being passed along the network, contains information defining the network configuration corresponding to the previously discovered neighboring nodes (see Table 1 and col. 15, lines 39-65; col. 14, lines 17-45). Each node generates and transmits a connectivity report (i.e. – "determining"; see also col. 19) reflecting the reported topological map of network links corresponding to the discovered neighboring nodes (col. 22, lines 42-54).

Regarding claim 17, applicant argues that DeVette does not teach the step of generating an alarm signal responsive to detecting an error between the network configuration and a planned configuration. Examiner disagrees. In column 20, lines 62 and on, DeVette discloses that "an alignment audit will be conducted in which the connectivity map as then constituted is saved and completely erased. As the connectivity map is thereafter regenerated, any discrepancies which reflect the existence of a fault or a reprovisioning will become apparent and can be processed." DeVette further discloses that the theoretical topology and connectivity data can be compared with the actual connectivity of the network (col. 2, lines 55-65). In addition, the "identification data" as disclosed in claim 23 of DeVette can be clearly and reasonably interpreted as "planned configuration" in that the identification data is used to facilitate the configuration signal.

Regarding claims 29 and 40, applicant argues that DeVette fails to teach the step of each node publishing the identity of its neighbors. However, the opposite is clearly true based on DeVette's disclosure of the publishing procedure. DeVette discloses that each node publishes neighboring node information through the OSC channel (e.g. – see col. 14, lines 16-28).

Regarding claim 36, applicant seems to have misinterpreted examiner's use of DeVette's network. The central network monitor (123 of fig. 1) is considered to be part of the optical node (101 of fig. 1). See also column 11, lines 18-25.

Applicant is reminded that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lee whose telephone number is (571) 272-2220. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DL

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER